New England:

Cleaner Environment Through

Energy Efficiency & Clean Energy

United States Environmental Protection Agency New England

October 2004

An Introduction

Energy use has an enormous impact on New England's air quality, water quality and climate. That's why EPA New England has dedicated significant resources to strategies that reduce the environmental impacts of energy use and increase the reliability of our energy supplies. Through conservation and development of cleaner energy sources, New England can meet its energy needs while ensuring the health of our environment.

Through more efficient appliances, buildings and automobiles, we can slash our energy demands with no reduction in the quality of our lives. And through increased use of renewable energy such as wind power and small, decentralized sources of energy such as fuel cells, we reduce our reliance on foreign supplies.

The information in this brochure is a snapshot of the great work being done by municipalities, businesses, nonprofit groups and colleges and universities to make energy efficiency and clean energy a part of their lives too.

Robert W. Varney
Regional Administrator
EPA New England

Spurred by the prospect of large cost savings on energy bills and growing citizen interest in less- polluting energy sources, communities as big as Boston and as small as Poultney, VT are saving millions of dollars each year with new energy efficiency programs and by using cleaner, renewable energy sources. Among the highlights:

Energy Efficiency

Fairfield, CT has saved more than $1 million on its energy bills the past two years thanks to energy efficiency improvements at two dozen municipal buildings and school buildings, as well as the town's wastewater plant. The work has been done through a Performance Contract with an energy services company which guarantees the town $7.5 million in energy savings over an eight-year period.

In ***Warwick, RI,*** the school department has slashed its electricity, gas and heating bills at 29 school buildings by 25 percent through various energy-saving measures. The energy-efficiency program has saved the city $2.3 million over the past five years.

Wind power is saving Hull, MA $130K a year

Manchester, NH is saving nearly $100,000 a year on its energy bills by replacing more than 3,000 traffic lights with energy-efficient light emitting diode (LED) traffic lamps which use 80 to 90 percent less energy and are certified under EPA's ENERGY STAR® Program. The city is also saving tens of thousands of dollars a year on maintenance costs because the LED lights last three to four years longer.

Energy-saving traffic lights in Manchester, NH

Who says historic buildings cannot be 'green?' ***Cambridge, MA*** debunked this myth when it restored its 132-year-old City Hall Annex with dozens of green building features, including solar panels, glazed windows, maximized

Cities and Towns

daylighting and a ground-source heat-pump system that uses three 1,500-foot deep wells to provide all heating and cooling. The 33,200-square-foot building, which retained all of its historic architectural features, is expected to use 30 to 40 percent less energy.

▸ More than 95 percent of ***Poultney, VT's*** 3,575 residents participated in a recent "Change a Light Challenge," which involved replacing at least one incandescent light bulb per household with new energy efficient bulbs. The newer Energy Star-qualified bulbs use one fourth as much energy and typically last up to 10 times longer than the older bulbs. Among the key players in the project was Green Mountain College which sent students door-to-door to deliver bulbs.

▸ Skylights, high-efficiency boilers and lights activated with occupancy sensors are just a few of the environmentally friendly features at the recently-renovated Congin Elementary School ***in Westbrook, ME.*** The $4.2 million project, which is expected to cut energy usage by 15 to 18 percent, was funded in part with a $1.8 million interest-free loan from a state revolving loan fund and an $85,000 grant from the state PUC's High Performance Schools Program.

Keene, NH has been a leader in using biodiesel fuel.

▸ ***Portsmouth, NH*** is pushing for its new library to be the first municipal facility in New Hampshire to be certified under the US Green Building Council's LEED (Leadership in Energy and Environmental Design) standards. The library will include water-efficient faucets, daylighting, occupancy sensors and energy-saving heating and ventilation systems. Studies show that while 'green' buildings may cost an extra 1-2 percent to construct, the long-term financial savings will be more than 10 times the additional up-front costs.

▸ The **Somersworth, NH** Housing Authority is saving more than $45,000 a year on its energy bills, thanks to energy-saving lighting and other energy improvements at its 169 housing units. The energy upgrades, completed last fall, were done through a perormance contract with an energy services company which guarantees the town at least $540,000 in energy savings over a 12-year period.

Transportation

▸ ***Cambridge, MA*** is using local ordinances to require companies and developers that add new parking spaces to offer programs that encourage commuting by public transit, biking and walking. Among the companies that has developed such programs is Millenium Pharmaceutical which compensates employees who walk and bike to work and charges them for use of company parking spaces. The city's Vehicle Trip Reduction and Transportation Demand Management Ordinances are key reasons why the city has seen a significant drop in single-occupancy car commuting in recent years.

▸ In ***New Haven, CT,*** the city is running all of the city's diesel vehicles on 'clean' ultra low-sulfur fuel and has installed a natural gas fuel station that can service up to 30 vehicles.

Clean Energy

- ***Keene, NH*** is running all 78 of the city's diesel vehicles on biodiesel fuel. The cleaner fuel, which is 20 percent soybean oil, is reducing the city's greenhouse gas emissions by 420 tons a year.

- In ***Hull, MA,*** a new 150-foot-high wind turbine is running all of the town's street lights and traffic lights, while also saving the town's ratepayers $130,000 a year on their electric bills.

- ***Keene, NH*** is saving $55,000 a year on its electricity bills by capturing methane gas at its landfill and converting it to electricity.

- In ***Brattleboro, VT,*** the school department is putting the finishing touches on a new wood-heating facility that will use wood chips from local lumber yards to heat the high school and the middle school. The heating system is expected to save the city $50,000 a year on energy while also reducing greenhouse gas emissions by 1,280 tons a year.

NE States Stepping up to the Plate on Energy Efficiency and Renewable Power

From energy-saving vending machines in Maine, to energy efficient buildings in New Hampshire to renewable power in Rhode Island, the New England states are all getting serious about fostering energy efficiency and "clean" energy sources within their borders.

As part of their commitment to reduce air pollution and meet greenhouse gas reduction goals set by the New England Governors and Eastern Canadian Premiers in 2001, the region's six state governments are adopting various strategies and programs to reduce their overall emissions and, in many cases, save money at the same time. Among the recent highlights:

- *In addition to distributing 3,700 energy-saving traffic bulbs, Maine officials recently announced the purchase of 100 percent renewable electricity for 750 state accounts. The extra cost for the renewable power is being offset through energy efficiency improvements at state buildings, including the recent installation of Vending Miser vending machines which use 46 percent less energy.*

- *Massachusetts has completed an inventory of greenhouse gas emissions at all state buildings and has pledged to reduce them by 25 percent by 2012.*

- *New Hampshire is saving more than $1 million a year on its energy bills due to recent energy-saving upgrades at more than two-dozen state buildings.*

- *Rhode Island recently approved a renewable energy portfolio standard which requires electricity suppliers to buy an increasing percentage of renewable energy every year, ultimately reaching 16 percent by 2020.*

All told, the New England states have been among the nation's leaders when it comes to public investments in energy efficiency—committing nearly $250 million in 2003 alone.

Cities and Towns cont'd

In ***New Haven, CT,*** a new hydrogen fuel cell facility at the city's wastewater treatment plant will save the city nearly $700,000 on its electric bills over the next 10 years, while also supplying the heat necessary to run an expanded fats/oil/grease processing facility which will yield the city an extra $200,000 in usage fees each year. The fuel cell uses chemistry rather than combustion to produce electricity and heat.

Worcester's pay-as-you-throw trash recycling program has diverted more than 100,000 tons of trash from incineration, saving the city millions of dollars in tipping fees while also reducing air pollution from nearby incinerators. The city's recycling rate is over 50 percent, the highest of any major city in New England.

Hanover, NH is installing wood-heating facilities that will use wood chips from local lumber yards to heat the high school and middle school. The heating systems, a first in a New Hampshire public school system, will save the community more than $60,000 a year on energy bills, while also reducing greenhouse gas emissions by nearly 1,000 tons a year. The facilities will displace about 115,000 gallons of fuel oil a year.

Burlington, VT recently signed a 20-year contract to buy nine megawatts of wind power from a planned wind project on Little Equinox Mountain in Manchester, VT. The wind project, slated to provide seven percent of the city's electricity, is a major boost to the city's goal of reducing greenhouse gas emissions citywide by 10 percent by 2010.

Essex Junction, VT is using a new cutting-edge technology at its wastewater plant to burn methane gas to generate electricity. In addition to cutting its electric bills by about $30,000 a year, the co-generator is cutting the plant's greenhouse gas emissions by over 250 tons a year—the equivalent of taking 42 cars off the road.

In The Future

Brockton, MA is moving forward with plans to build New England's largest solar energy park on an abandoned Brownfields site in the city. The "Brightfield" project, which has received major funding from EPA and the Massachusetts Technology Collaborative, could include as many as 6,720 solar panels connected in "strings" that span the 27-acre site. Construction could begin as early as fall 2004.

EPA NE a National Leader on Energy Efficiency

EPA's New England Office is 'walking the talk' on energy efficiency and one of our proudest achievements is our new regional laboratory in North Chelmsford, MA, a national model for green building design.

EPA New England's regional lab in North Chelmsford, MA

Equipped with occupancy sensors, energy-saving lighting, modular gas-fired boilers and dozens of other 'green' features, the 68,000-square-foot building is at least 35 percent more energy efficient than a typical laboratory. The building is also being powered with wind-generated electricity purchased through Green Mountain Power of Vermont, which will generate or purchase wind-powered electricity which matches the electrical consumption of the lab facility.

The North Chelmsford lab was the first EPA building in the country to receive a LEED 1.0 Gold Rating from the U.S. Green Building Council. LEED (Leadership in Energy and Environmental Design) is a national rating system designed to encourage more sustainable buildings.

Bringing Energy Efficiency to Massachusetts Banks

EPA recently collaborated with the Massachusetts Bankers Association, Cambridge Savings Bank and Mellon Financial on a series of workshops to educate financial institutions in Massachusetts about the importance of energy efficiency and the availability of the agency's Energy Star benchmarking software tool that banks can use to assess the energy efficiency of their individual buildings and branches.

The bankers association, which has more than 200 members with more than 2,000 buildings, hosted a half-dozen workshops last fall and winter in all corners of the state. More than 40 banks attended the half-day sessions.

Among the highlights of the workshops were presentations by two Boston-area banks—Cambridge Savings and Mellon Financial in Everett—that have participated in the agency's ENERGY STAR® program and are already seeing tangible benefits in terms of cost savings and pollution reductions.

EPA will be undertaking an assessment of follow-up actions taken in response to the workshops. One bank, Lowell Five Cent Savings Bank, has already benchmarked 10 of its buildings.

Businesses across New England have learned that curbing their energy use is one of the easiest, most cost-effective ways to control costs. Companies are also achieving greater energy independence and cost predictability by purchasing more of their power from clean, renewable energy sources. Among the examples across the region:

Energy Efficiency

- The MA-based ***Shaw's Supermarket*** chain is saving several million dollars each year through energy efficiency programs, including comprehensive lighting retrofits at its stores and detailed computerized tracking of energy use. Shaw's, a recent ENERGY STAR® "Partner of the Year," has consistently found that energy-saving investments have paid for themselves in two to three years.

- ***The Raytheon Corp.*** received a national ENERGY STAR® award for its successful lighting efficiency program which is saving the company more than $250,000 a year on its lighting costs. With upgrades only partially completed, Raytheon has cut lighting costs by an average of 82 percent.

- After launching an energy program in 2000, ***Cambridge Savings Bank*** *in Cambridge, MA* reduced its energy use by 22 percent between 2001 and 2002, even though it added two new branches during this time period. The company's energy efficiency program is saving the bank more than $60,000 a year on its energy costs. Two Cambridge Savings Bank buildings earned the ENERGY STAR® label in 2003 and seven buildings, including five branches, received the ENERGY STAR® label in 2004.

- Working with Efficiency Maine, ***Taylor Farm*** in St. Albans, ME installed nine large energy efficient fans in its dairy barn instead of 119 conventional fans. In addition to expected energy savings exceeding $20,000 a year, the variable speed drive units produce a more even flow of cool air that is better for milk production because it deters the farm's 500 cows from bunching around the smaller fans.

Businesses

The ***Genzyme Corp.*** has built a new 12-story headquarters in Cambridge, MA that will reduce energy use by about 42 percent, saving the company an estimated $460,000 a year. The building's sustainable design also includes waterless urinals and low-flow fixtures that will reduce potable water use by nearly a third, or about 500,000 gallons, and a vegetative roof and rainwater collection system that will reduce stormwater runoff impacts.

New solar panels at Shaw's Supermarket in Burlington, MA

Cambridge, MA Savings Bank

Since launching an energy program at its Everett, MA facility in 2001, the ***Mellon Financial Corp***. has slashed its energy usage by 13 percent and saved more than three million kilowatt hours of electricity. The reduced energy use at the 375,000-square-foot office complex has saved the company more than $220,000 over the past two years. Mellon earned a 2003 ENERGY STAR® label.

Progressive Plastics is saving nearly $18,000 a year by installing energy efficient hydraulic injection molding machines at its Williamstown, VT plant. In addition to cutting their electricity use by 160,000 kilowatt hours each year, the more efficient machines reduced the company's scrap rate from five percent to nearly zero and eliminated the labor and environmental costs of dealing with hydraulic fluids in the old machines.

Hines, an international property management company, has 70 major office buildings in the US that have received the ENERGY STAR® label, including two flagship properties in downtown Boston known as Two Twenty Two Berkeley and Five Hundred Boylston. The company's reduced energy usage and avoided emissions through 2003 was equivalent to removing more than 33,600 vehicles from the road for a year and planting over 45,000 acres of trees.

Bringing "Green" Principles to Shipping

The SmartWay Transport Partnership is a new voluntary program between EPA and the freight industry that will increase the energy efficiency and energy security of our country while significantly reducing air pollution and greenhouse gases. The partnership creates strong market-based incentives that challenge companies shipping products, and the truck and rail companies delivering these products, to improve the environmental performance of their freight operations.

By 2012, this initiative aims to reduce 33 million to 66 million metric tons of carbon dioxide emissions and up to 200,000 tons of nitrogen oxide emissions per year. At the same time, the initiative will result in fuel savings of up to 150 million barrels of oil annually. More than 50 partners have already joined the program, including Clean Diesel Technologies in Stamford, CT; AMI Transport Services in Worcester, MA; and Brauns Express in Hopedale, MA.

ENERGY STAR® Bolsters Energy Saving Efforts

EPA's ENERGY STAR® program provides energy efficiency services for just about everyone, including municipalities, business owners and individual homeowners.

A voluntary partnership between government, consumers and businesses, ENERGY STAR® works by making it easy for everyone to become more energy efficient. The ENERGY STAR® LOGO helps consumers buy products that use less energy without sacrificing performance. ENERGY STAR®-qualified appliances, for example, use up to 50 percent less energy and water than standard models. ENERGY STAR® lighting performs even better, using two thirds less energy and lasting six to 10 times longer than traditional lighting.

ENERGY STAR®'s Portfolio Manager software allows municipalities, businesses and other groups to benchmark and improve the energy efficiency of their buildings. The software is easy to use — so easy, that middle school students in Keene, NH used it a few years ago to evaluate the energy performance of Keene City Hall. As a result of that effort, the city is now looking to implement energy efficiency measures in the building.

The bottom line: ENERGY STAR® is saving money and improving the environment. In 2003 alone, ENERGY STAR® helped Americans save more than $9 billion on their energy bills and prevent greenhouse gas emissions equivalent to those from 18 million automobiles.

▸ ***The Green Co.,*** a residential home builder based in Newton, MA, has constructed hundreds of ENERGY STAR®-qualified homes in the past several years, including 80 at the Pinehills in Plymouth, MA that earned the company a "2004 ENERGY STAR® for Homes Outstanding Achievement Award." ENERGY STAR®-qualified homes are independently verified to be at least 30 percent more energy efficient than homes built to the national Model Energy Code 10 years ago.

▸ ***Gregory's Supply,*** a building supply and hardware store in Burlington, VT, is saving about $10,000 a year on its electric bills after implementing energy efficient equipment and practices at its 24,300-square-foot store.

Transportation

▸ In addition to offering its employees $65 per month for transit subsidies, ***the People's Bank*** in Bridgeport, CT provides employees $1 a day when two employees commute together and $1.50 a day when three or more employees ride together. People's Bank joined EPA's Best Workplaces for Commuters list last fall.

▸ ***Chittenden Bank*** in Burlington, VT is part of the 10 Percent Challenge, a local effort to cut greenhouse gas emissions in the city by 10 percent by 2010. To help employees reduce air pollution from their daily commutes, the bank provides free bus passes and a shuttle service among its downtown buildings and remote parking lots.

Clean Energy

▸ Last winter, ***Cranmore Mountain*** in North Conway, NH became the first ski resort on the East Coast to use biodiesel fuel to power its snow grooming machines. The project is a collaboration of the NH Department of Environmental Services and the Granite State Clean Cities Coalition, a statewide partnership to increase the use of alternative fuels across New Hampshire.

▸ ***Massachusetts Electric, Nantucket Electric and Rhode Island's Narragansett Electric*** recently launched a GreenUp program that gives residential and small business customers several options for getting their electricity from renewable energy sources such as wind,

Businesses cont'd

solar, biomass and small hydroelectric. The program, the first of its kind in New England, has already attracted more than 1,000 Rhode Island customers. For a typical residential customer using 500 kilowatt hours of electricity a month, the additional monthly cost, depending on the renewable product selected, will range between about $6 and $12.50.

The Searsburg, VT Wind Farm is one of the renewable energy suppliers for the GreenUp program in MA and RI

The Schiller power plant in Portsmouth, NH will soon be burning wood chips.

- ***Interface Fabrics Group***, a commercial fabric manufacturer with facilities in Massachusetts and Maine, is buying 2.5 million kilowatt hours of wind power a year—enough electricity to weave one million yards of Interface's environmentally conscious fabric known as *Terratex*™. The power is being purchased with *Green-e*™ certified renewable energy certificates. The company displays the *Green-e*™ logo on its products and the new business generated by this approach has more than offset the premium paid for the energy certificates.

- The ***Public Service Co. of New Hampshire*** expects to begin construction this fall to replace a 50-megawatt coal-fired unit at its Schiller Station in Portsmouth, NH with a 50-megawatt 'renewable' unit that will burn wood chips. In addition to being carbon dioxide neutral, the wood-fired boiler will reduce nitrogen oxide emissions by 75 percent, sulfur dioxide emissions by 98 percent and mercury emissions by 91 percent.

- ***Pitney Bowes Inc.***, a $4.4 billion company based in Stamford, CT, agreed in 2003 to purchase renewable energy certificates for 10 percent of the electricity consumed at its US and UK offices. The certificates will support wind, geothermal and other renewable projects. Pitney Bowes is a founding member of the Green Power Market Development Group, a commercial/industrial partnership dedicated to building markets for renewable power.

- ***New England Confectionary's*** new manufacturing facility in Revere, MA is powered by a new six megawatt combined heat and power (CHP) plant, which operates at an efficiency of 68 percent compared to a national average of 33 percent for conventional generation. The plant will save the company about $750,000 a year in utility costs while cutting emissions per ton of candy produced of carbon dioxide by 32 percent, nitrogen oxides by 39 percent and sulfur dioxide by 97 percent.

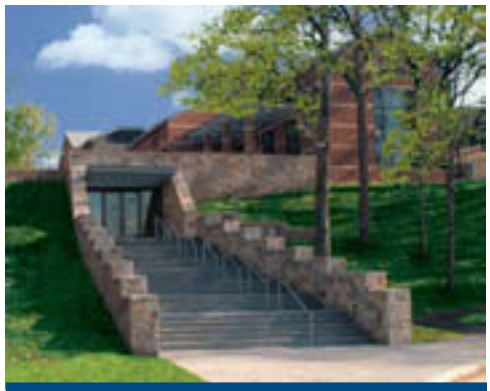
In The Future

Concerned about electric system reliability in Fairfield County, CT, EPA's New England Office is working with the ***Business Council of Southwest Connecticut (SACIA)*** to advance energy efficiency in the business community. EPA and SACIA members evaluated eight million square feet of office space and discovered vast opportunities to slash energy use and save millions of dollars. Armed with nearly $1 million from Connecticut Department of Public Utility Control, EPA, SACIA and Connecticut Light and Power are now moving forward with a pilot project to implement energy efficient programs in the office buildings.

Nonprofit groups are uniquely positioned to educate and inspire New Englanders about the wide range of possibilities for "greening" buildings with energy-saving features and renewable energy. All across the region—from parish halls and art studios in Massachusetts, to land conservation groups in New Hampshire—nonprofits are using new green building designs to showcase technologies that are available and to demonstrate their own environmental commitment.

Energy Efficiency

Given Mark Twain's fascination with technology, it only makes sense that the new ***Museum Center at the Mark Twain House & Museum*** in Hartford, CT would include cutting-edge 'green' technologies. The 33,000-square-foot building that opened last fall uses geothermal wells as the primary heating and cooling source for the building and various other energy-saving systems that are expected to cut energy use by nearly 30 percent.



The Mark Twain Museum Center in Hartford, CT is the first LEED-certified museum in the country.

By installing photovoltaic solar panels and a renewable wood-chip heating system, ***the Society for the Protection of New Hampshire Forests*** has cut the energy bills at its Concord, NH headquarters by 23 percent. The nonprofit group has also opened a new 11,400-square-foot wing, built with native green-certified lumber and a super-insulated air-tight exterior shell, that uses 60 percent less energy than comparably-sized buildings.

Through upgrades and other energy-saving measures, ***the All Saints Parish*** of Brookline, MA has cut its utility bills by nearly $5,000 a year, despite an increase in operating hours. All Saints Parish is a member of the Massachusetts Interfaith Power and Electric initiative which has helped dozens of other congregations reduce energy consumption

Fostering Clean and Renewable Energy

EPA's New England Office is working closely with state and federal agencies to increase the supply of renewable energy resources in the region. EPA was one of several federal and state agencies to provide funding to Brockton, MA to redevelop an abandoned 27-acre industrial site into the largest solar electricity generation facility in New England. Construction is expected to begin this fall. EPA is also working with the Massachusetts Renewable Energy Trust and other state agencies to assist Massachusetts municipalities in siting and building small-scale wind power projects in their communities. Finally, EPA New England is working with federal and state agencies to review large and controversial renewable energy projects such as the Cape Wind proposal off Cape Cod to ensure that they are developed in a manner consistent with the requirements of the National Environmental Policy Act.

Nonprofits

Photovoltaic panels provide 25 percent of the electricity at the Doyle Conservation Center in Leominster, MA

and promote renewable energy.

- Roof-mounted photovoltaic panels, composting toilets and two 1,500-foot geothermal wells used for heating and cooling are just a few of the "green" attributes of ***The Trustees of Reservations' new Doyle Conservation Center in Leominster, MA.*** The 18,000-square-foot building is showing annual energy savings of 61 percent, which is reducing energy bills by about $6,000 a year.

- ***Massachusetts Audubon's Boston Nature Center*** in Mattapan, MA includes photovoltaic shingles that convert the sun's energy into electricity and a ground-source geothermal heat pump system that takes advantage of the solar energy stored in the earth to provide efficient heating and cooling. The 10,150-square-foot building uses 30 to 35 percent less energy than similarly sized buildings.

Bike commuting is catching on in Burlington, VT

Transportation

- In Burlington, VT, the ***Campus Area Transportation Management Association*** is spearheading a Bike/Walk Bucks Reward Program in which 200 city employees are earning $10 a month by biking or walking to work. The commuter incentive—awarded as $10 gift certificates redeemable at downtown stores—is available to workers at the University of Vermont and several other large employers.

- A partnership of Maine organizations, including Acadia National Park, Downeast Transportation Inc and Friends of Acadia, last year launched a 'clean' propane shuttle bus service that substantially reduced road congestion and pollution levels on Mount Desert Island. The free ***Island Explorer Shuttle Bus***

Best Workplaces for Commuters

EPA and the U.S. Department of Transportation have teamed up to recognize and honor companies and organizations that offer superior commuter benefits such as public transit subsidies, robust telecommuting programs and carpool matching services. Participating companies and organizations are included on New England's list of "Best Workplaces for Commuters." The list is publicized annually through the media and at special events across New England.

The current list for 2004 includes 30 new employers from around New England, bringing the list total to 113 employers representing nearly 170,000 employees in the region. Among those on the New England list are the Massachusetts Institute of Technology, Harvard University, Delta Airlines, EMC Corp., Massachusetts General Hospital and Intel. Also recognized this year for the first time was the Upper Valley New Hampshire/Vermont Best Workplaces for Commuters District, which has done exemplary work in providing commuter benefits to residents in Hanover, NH and five nearby communities.

In 2002, EPA's New England Office in Boston became the first government agency in the region to join the program. More than 90 percent of the agency's Boston employees use public transit, van pools or bicycles in their daily commutes.

Nonprofits cont'd

service includes seven bus routes linking inns, hotels and campgrounds in and around Acadia National Park.

- ***Grow Smart Road Island,*** a member of the New England Best Workplaces for Commuters coalition, provides employees with a $150-per-month subsidy for public transit expenses.

Clean Energy

- The ***Artists for Humanity Epicenter,*** a new studio and exhibit center in Boston's Point Channel neighborhood, includes the city's largest photovoltaic system. The 49-kilowatt, 160-panel solar array is expected to supply more than 80 percent of the building's electricity. The project, which received funding support from the Massachusetts Technology Collaborative and NStar, also includes natural daylighting, panel fans and an unusual ventilation tower that eliminates the need for air conditioning.

The Artists for Humanity Epicenter includes a glass curtain wall for daylighting benefits.

The Dartmouth Hitchcock Medical Center in Lebanon, NH supports biking and other pollution reducing commuting options.

The Greater Boston Breathes Better Campaign

EPA has launched a new partnership among government, the private sector, institutions and non-profit organizations to improve Boston's air quality by reducing air pollution and air toxics from transportation sources in the Boston area.

The project, a collaboration of Boston area companies, medical and academic institutions, non-profit organizations, government agencies, and EPA, provides one-stop shopping for local partners to participate in EPA's voluntary transportation programs and other innovative projects to reduce air pollution and air toxics from mobile sources.

Workshops were held this spring and summer to solicit input and involvement from Boston area companies, medical and academic institutions and local communities.

Many employers are already taking action. Boston Coach has established a robust anti-idling program for all of its buses and limos. Shuttle buses that service the Longwood Medical area have been equipped with diesel particulate matter filters and run on ultra low sulfur diesel fuel, reducing emissions by more than 90 percent. And Harvard University is operating all of its diesel vehicles on biodiesel fuel. In just the past year, 11 Boston-area employers have been added to EPA's Best Workplaces for Commuters list.

Colleges & Universities

Blending student idealism and cutting-edge thinking, university campuses are ideal locations for setting the bar on energy efficiency and clean energy projects. That's certainly been the case in New England, where dozens of universities and colleges are aggressively reducing their energy consumption and purchasing renewable energy at unprecedented levels. And the impetus is coming from all levels—from ground-level student activists such as CT College's Renewable Energy Club to high-level administrators.

Energy Efficiency

The Institute for Sustainable Energy (ISE) at Eastern Connecticut State University is using the Energy Star Portfolio Manager benchmarking tool to help cities and towns across Connecticut measure and improve their energy performance. ISE has already evaluated more than 70 school and municipal buildings – leading to actions that are saving the communities millions of dollars each year on their energy bills.

The ***University of New Hampshire*** in Durham, NH has received national kudos for its energy efficiency program which has cut UNH's energy bills by more than $4 million a year. After surveying 180 colleges and universities, the US Department of Energy recognized UNH for being in the top five percent of the energy-efficient research universities in the country. The program includes lighting change-outs, motor replacements, control system upgrades and energy awareness programs for maintenance and operations staff, students and faculty.

Middlebury College has won praise for its new energy-efficient library

Middlebury College in Middlebury, VT received the Excellence in Energy Efficiency Award this winter from Efficiency Vermont, a statewide energy efficiency utility, for successfully integrating energy efficiency in a number of recent construction projects, including a new library, a new dining and residency hall and a chilled water plant. The college expects it will save $35,000 in energy costs each year at the library due to energy efficiency measures regarding construction and lighting. The energy-saving measures will also curb greenhouse gas emissions by 250 tons a year.

Since the ***University of Vermont*** established an energy policy in the early 1990s, projects in energy efficiency and smarter energy use have avoided an estimated $1.6 million in electricity costs in 2003 alone. Among the 'smart' projects: Cooling system upgrades at the heating plant have reduced annual energy bills by $40,000 and annual water use by 690,000 cubic feet. New on-campus washing machines consume 50 percent less water and 40 percent less electricity. Occupancy sensors, light emitting diode exit signs and Sleep Mode software for computers are used in all campus buildings.

Transportation

- ***Dartmouth College*** in Hanover, NH has reduced parking and traffic congestion by implementing a Parking Decal Buyout Program which provides subsidies to eligible employees who use alternative transportation means for getting to work instead of commuting alone in their cars. Participants receive subsidies of up to $360 a year, as well as four parking passes per month.

- In an effort to reduce the number of cars on its campus, ***Tufts University*** in Medford, MA is offering faculty, staff and students over 21 years of age the option of using Zipcars, which can be leased on an hourly basis. Members reserve cars by phone or the Internet, go to the car parked in its designated spot and use their membership card to get in. More than a dozen college campuses in the region are participating in the Zipcar program.

- In addition to providing an extensive shuttle bus service for employees and students, ***Yale University*** sponsors a HomeBuyer Program that offers $25,000 to employees who purchase homes in designated areas of New Haven, CT, enabling them to walk, bike or take the shuttle to work. Nearly 600 employees have taken advantage of the program. It is the largest, most generous employee-assistance home ownership program offered by a university.

Clean Energy

- ***The Massachusetts Institute of Technology*** in Cambridge, MA is using 28 percent less fuel with a 21-megawatt combined heat and power facility that provides electricity, process steam and heating and cooling for its campus. The university received an Energy Star Combined Heat and Power (CHP) Award for its work.

A wind turbine being built in the Midwest will supply renewable power for the College of the Atlantic in Maine

- ***Colby College*** in Waterville, ME no longer relies on fossil fuels for its electricity thanks to a new contract that has all of the college's electricity coming from renewable energy sources. Half of the college's power is coming from Maine hydro-power, the other half from Maine biomass wood waste such as wood chips and saw dust. By eliminating its past reliance on coal for 70 percent of its power, Colby has cut its smog-causing nitrogen oxide emissions by 41 percent and acid rain-causing sulfur dioxide emissions by 98 percent.

- In April 2004, ***the College of the Atlantic*** in Bar Harbor, ME became the nation's first college to make a multi-year commitment to purchase 100 percent of its electricity from new renewable wind-power sources. To achieve this goal, the college signed two contracts – a short-term contract to buy renewable energy credits, or 'green tags,' from Native Energy LLC in Charlotte, VT and a long-term contract with the Endless Energy Corp. which is developing wind power facilities in Maine.

- ***Connecticut College,*** a founding member of EPA's Green Power Partnership, recently doubled its support for the generation of green power by purchasing wind power energy certificates equal to six megawatts, or about 44 percent of the college's annual electrical consumption. The effort began three years ago when students in the college's Renewable Energy Club won approval to raise student fees to pay the extra costs for the renewable power.

Colleges & Universities cont'd

- EAD Environmental, a New York-based green power marketer, announced this year that it will supply ***Harvard University*** in Cambridge, MA with renewable energy certificates (RECs) to offset the electricity consumption of newly constructed, energy efficient buildings. Under a two-year contract, Harvard will purchase 3.99 million kilowatt hours of *Green-e*™ certified RECs from landfill gas generating projects, which is equivalent to 150 percent of the electricity needed for the new Graduate School Housing building.

- Under a two-year contract, EAD Environmental is also supplying the ***University of Southern Maine (USM)*** in Portland, ME with 1.5 million kilowatt hours of *Green-e*™ certified renewable energy certificates from wind energy facilities to offset the electricity needs of a new campus building for which it is seeking LEED certification.

- ***Yale University*** in New Haven, CT was recently recognized by EPA's Combined Heat & Power Partnership for its Direct Fuel Cell power plant that provides 250 kilowatts of electricity as well as heat for controlled humidity at the school's Environmental Science Center. The power plant supplies about half of the electric power for the building, which is the archival storage facility for the Yale Peabody Museum. Heat from the fuel cell is recovered and used to maintain a controlled humidity environment for Peabody's collection of artifacts. The CHP system operates at 58 percent efficiency and requires 32 percent less fuel than typical onsite thermal generation and purchased electricity.

NE and Eastern Canadian Universities Charting New Energy Paths

Last summer, the governors of the New England states and the premiers of the eastern Canadian provinces issued a "campus challenge" to the presidents and chancellors of colleges and universities across the region, asking their support to the greenhouse gas reduction goals adopted by the governors and premiers in 2001. By May 2004, the leaders of nearly 100 schools had pledged their support.

On the heels of that support, EPA and the NE Board of Higher Education held a college/university climate change symposium in June that brought together campus budget and planning officials, energy and plant managers and sustainability coordinators from across the region. Participants heard case studies, shared their varied experiences in "greening" their campuses, and discussed ways to implement commitments made in response to last year's "campus challenge."

Much of the work will focus on improving energy performance through aggressive energy efficiency and conservation, pursuing clean technology projects, expanding recycling and green procurement activities, purchasing hybrid and fuel efficient vehicles and exploring opportunities for renewable energy.

Plans for future workshops are being developed by the NEGC/ECP's College/University Committee and its advisory group.

Contacts & Reference

EPA New England Energy Team Programs:

Energy Efficiency

Renewable Energy/ Clean Technologies

Transportation

SmartWay Transport Partnership

Global Climate Change/ Energy

Contact Information:

For more information call 1-800-821-1237

or visit www.epa.gov/ne

Web links to EPA's Energy Programs

Energy Star—www.energystar.gov/
Green Power Partnership—www.epa.gov/greenpower/
Combined Heat and Power Partnership—www.epa.gov/chp/
Best Workplaces for Commuters—www.commuterchoice.gov/
SmartWay Transport Partnership—www.epa.gov/smartway/
Climate Leaders—www.epa.gov/climateleaders/

Web links to EPA New England Energy Programs

Energy & New England's Environment—www.epa.gov/region1/eco/energy/index.html
EPA NE's 'Green' Regional Laboratory—www.epa.gov/region1/lab/greenbuilding/index.html

Related Links

Northeast Energy Efficiency Partnerships—www.neep.org/

Web links to New England State Energy Programs

Connecticut—www.ctclimatechange.com
Maine—www.maine.gov/dep/air/globalwarming/index.htm
Massachusetts—www.mass.gov/ocd/climate.html
New Hampshire—www.des.state.nh.us/ard/climatechange/index.html
Rhode Island—www.state.ri.us/dem/programs/bpoladm/stratpp/greenhos.htm
Vermont—www.vermont.gov/governor/orders/Climate-Change-Action-Plan.html

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